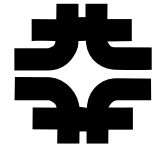
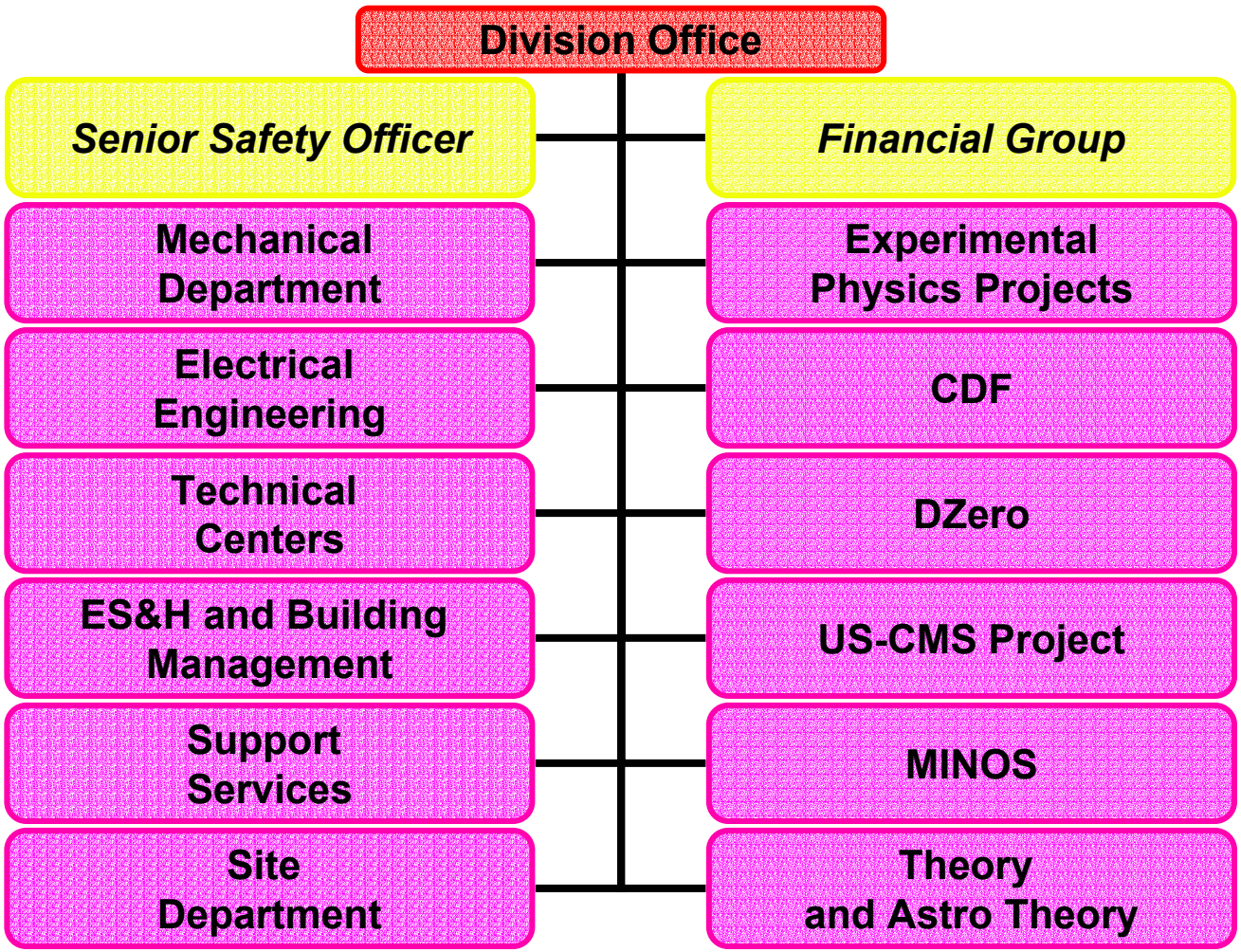


Planning 2004-2006:

Overview of PPD

John Cooper
Fermilab
March 17, 2004

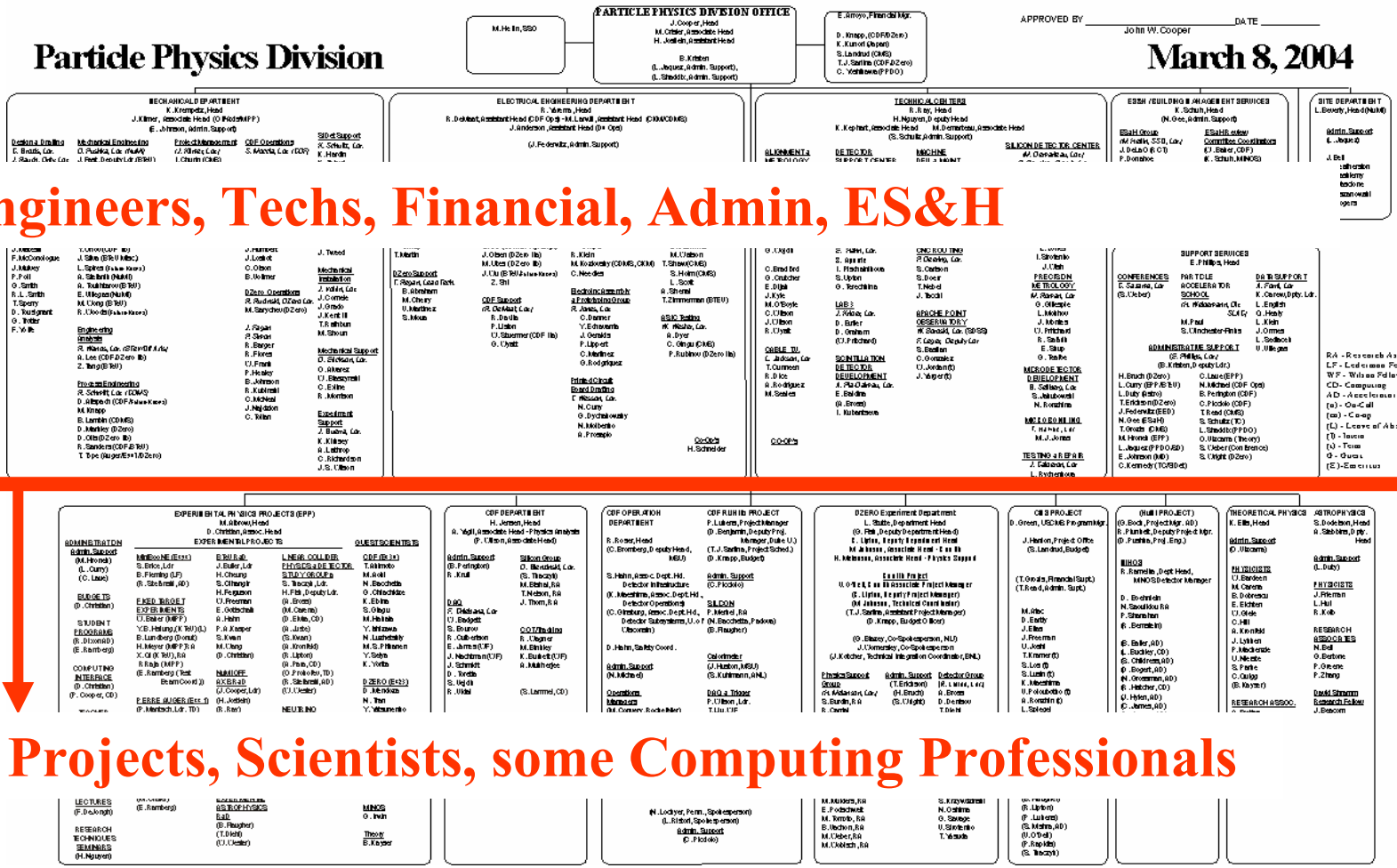
PPD Organization Chart



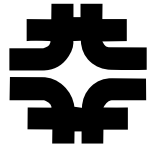
Technical Resource Side supporting the science efforts (some embedded CDF & DZero groups)

Science Side (Almost all of our 152 scientists are in these departments)

The actual PPD Organization Chart (see paper copy)

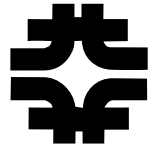


How to read the PPD Org Chart



- Scientist Departments are in the bottom row
  - CDF and DZero each have small Computing Professional Groups here to support online computing
- Support Departments are in the top row
  - Engineers
    - (current assignment in ( )),
  - Mechanical and Electrical technicians,
  - Financial and Administrative support people
    - (current assignment in ( ))
  - ES&H professionals
  - Division-wide computing support professionals
- Matrix Management of the Support Departments is done to support the science efforts
  - Note embedded CDF, DZero groups in Mechanical & Electrical Depts.

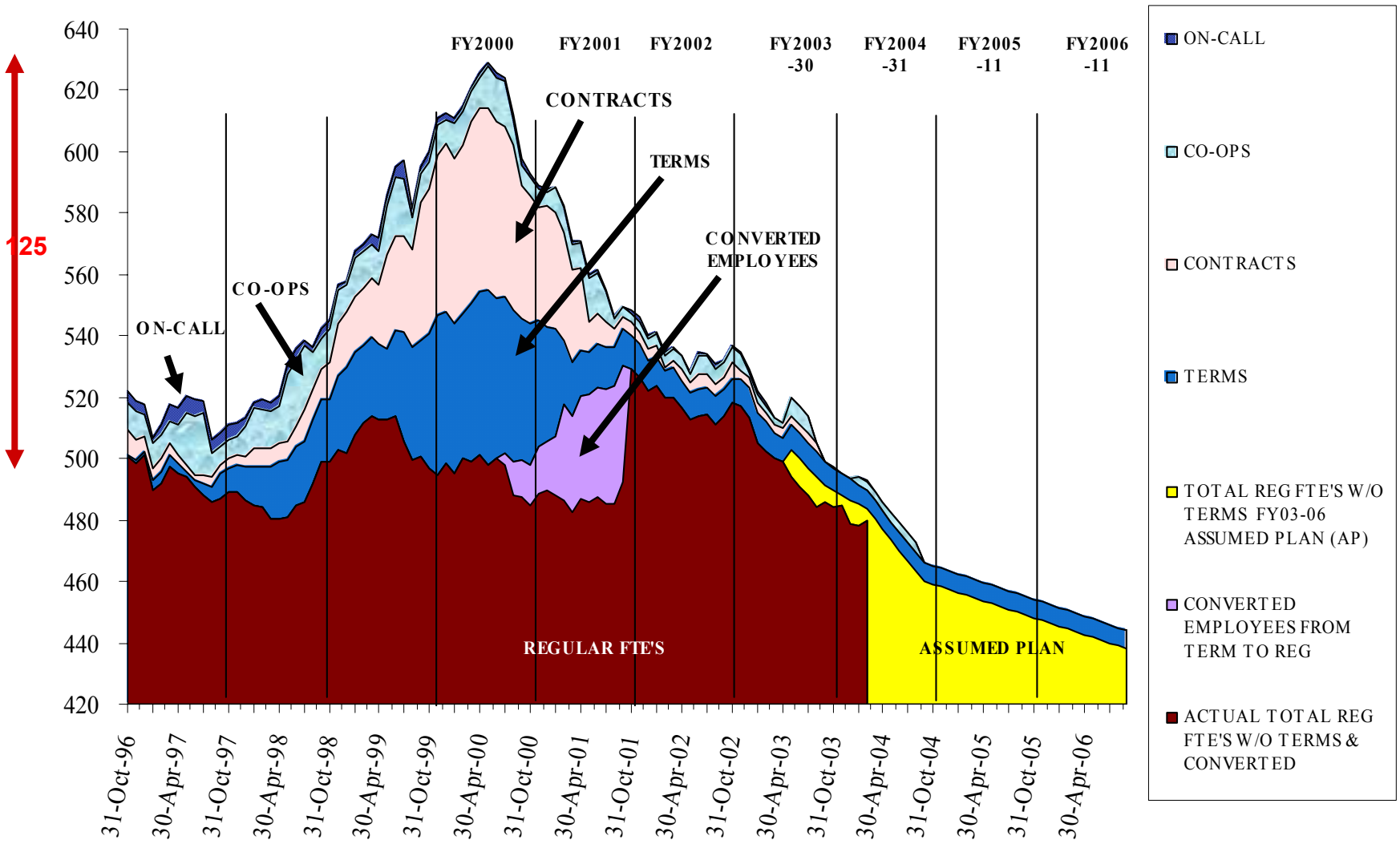
Numbers of People by category
(Feb 29,2004 snapshot of PPD)



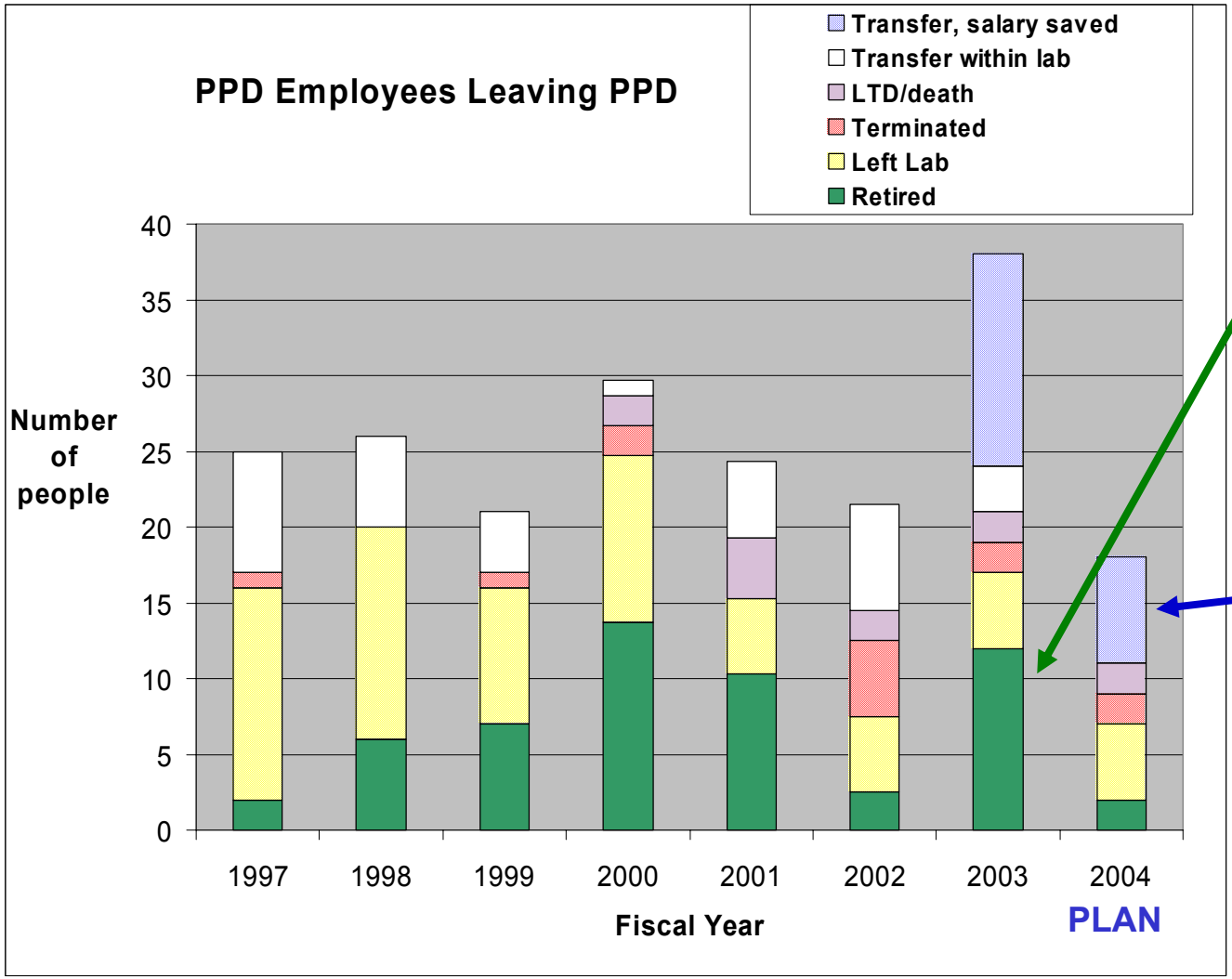
- 152 Scientists
- 90 Engineers
  - (31 Mechanical, 27 Electronics, 19 Engineering Phys, 13 Eng Assoc)
- 24 Designers / Drafters
- 24 Computing Professionals
- 117 Mechanical Techs
- 44 Electrical Techs
- 9 ES&H Professionals
- 31 Administrative / Financial
- 491 TOTAL
- +84 Guests and Visitors (not all are paid)

Numbers of People in PPD:

Some History & planned future



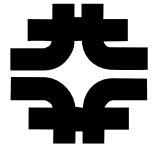
Can we downsize this much through attrition?



Voluntary Early Retirement Program

Need to keep moving people to other divisions (and other jobs within PPD)

Overview of reassignments during the last 2 years



- To Directorate
  - 1 scientist
- To Accelerator Division
  - 3.5 scientists
  - 3 engineers
  - 5 mechanical techs
  - 1 electrical tech
- To Technical Division
  - 2 scientists
  - 2 engineers
    - 3- 6 more under discussion
  - 3 mechanical techs
- To ES&H Section
  - 1 administrative person
- To Computing Division
  - 2 scientists
  - Discussing 1 elect. tech for PREP
  - Discussing 1 mech. tech for bldg. man.
- Reassigned within PPD
  - 1 mechanical tech to admin.
  - 1 mechanical tech to bldg manager
  - 1 designer to admin, then to project scheduling
  - 1 ES&H leader to project scheduling
  - Cycling 6 SiDet CMM people through our Alignment Group as back-ups
- 40 total done or under discussion
  - Believe me, this is a major job!

FY04, 05, 06 Plan
Distribution of PPD people by labor type

- This is a plan.
- Downsize by 52 more people through attrition & reassignments
- Keep shuffling and retraining people

		Monthly						Weekly / Hourly					
		Admin & Management	Computer Professionals	Engineering Physicists	Engineers	Scientists	Other Technical Support	Clerical & Secretarial	Drafters	Service Workers	Skilled Trades	Technicians	TOTAL
FY04 TOTAL		21.9	24.0	18.0	68.5	152.9	72.6	8.5	13.0	0.0	0.0	107.2	486.6
FY05 TOTAL		22.9	24.0	18.0	60.0	150.7	67.9	8.5	13.0	0.0	0.0	91.3	456.2
FY06 TOTAL		22.4	24.0	18.0	59.9	146.8	61.0	8.5	13.0	0.0	0.0	85.7	439.2

About 9 engineers finish NuMI, MINOS or future kaons this year

BTeV needs 6 – 9 engineers for R&D and in TD for BTeV low beta insertion

To match our needs for this period

FY05, 05, 06 Plan

Distribution of PPD people over the projects

PPD Staff levels (FTE's)					
			FY04 TOTAL	FY05 TOTAL	FY06 TOTAL
	TOTAL		**486.6**	**456.2**	**439.2**
	Experimental		304.6	289.8	279.9
		CDF	73.2	70.9	62.0
		D0	93.0	86.5	70.6
		MINOS	23.1	7.0	5.2
		MiniBooNE	2.5	2.0	2.0
		CMS	37.9	39.0	29.9
		BTeV	35.4	43.5	78.7
		Future Kaons	6.3	2.8	0.0
		SDSS	7.4	7.4	5.4
		CDMS	4.7	6.0	6.0
		Auger	4.0	3.7	3.4
		Fix target exp	10.1	9.0	6.3
		New Initiatives	7.0	12.2	10.6
	Theory		35.0	35.0	35.0
	LHC Accelerator		0.0	0.0	0.0
	Accelerator operation		71.7	53.3	52.5
		Run 2	56.3	53.3	52.5
		MiniBooNE	0.0	0.0	0.0
		NuMI	15.4	0.0	0.0
	Accelerator R&D		7.6	12.7	12.5
		NLC	4.4	9.4	9.7
		TESLA	0.0	0.0	0.0
		FNPL	0.0	0.0	0.0
		Muon Facilities	2.7	2.7	2.2
		New Proton Source	0.5	0.7	0.7
		VLHC	0.0	0.0	0.0
		Generic R&D	0.0	0.0	0.0
	Other Direct		67.7	65.4	59.3
	Indirect		0.0	0.0	0.0

You have the details on the handout,
We can discuss via next 3 slides

Run 2 projects conclude

CMS construction finishes
(but # scientists grows)

BTeV ramps up,
Following their projections

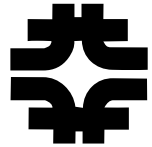
Fading as analysis completes

Small increase

NuMI finishes

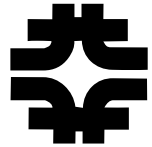
Small decrease

FY04 alone



		Monthly						Weekly / Hourly					
FY04		Admin & Management	Computer Professionals	Engineering Physicists	Engineers	Scientists	Other Technical Support	Clerical & Secretarial	Drafters	Service Workers	Skilled Trades	Technicians	TOTAL
TOTAL		**21.9**	**24.0**	**18.0**	**68.5**	**152.9**	**72.6**	**8.5**	**13.0**	**0.0**	**0.0**	**107.2**	**486.6**
Experimental		8.2	16.0	11.7	59.0	105.7	44.0	2.0	7.5	0.0	0.0	50.4	304.6
	CDF	4.5	4.0		10.7	32.7	9.8					11.5	73.2
	D0	1.5	9.0	5.7	12.5	32.8	13.0	0.5	4.3			13.7	93.0
	MINOS				1.5	3.3	5.5		1.0			11.8	23.1
	MiniBooNE					2.5							2.5
	CMS	2.0	2.0	2.0	10.0	8.6	7.8	1.0	2.0			2.6	37.9
	BTeV			2.0	17.3	6.3	5.0	0.5				4.3	35.4
	Future Kaons			1.0	2.5	1.6	0.7					0.5	6.3
	SDSS			1.0	1.5							4.8	7.4
	CDMS	0.2			0.5	0.9	2.1					1.0	4.7
	Auger				0.0	4.0							4.0
	Fix target exp		1.0		1.5	7.2	0.2					0.2	10.1
	New Initiatives				1.0	5.8			0.3				7.0
Theory		2.0				33.0							35.0
LHC Accelerator													0.0
Accelerator operation		0.0	0.0	4.2	7.1	3.7	12.1	0.0	2.5	0.0	0.0	42.1	71.7
	Run 2			3.2	0.8	2.7	10.0					39.6	56.3
	MiniBooNE												0.0
	NuMI			1.0	6.3	1.0	2.1		2.5			2.5	15.4
Accelerator R&D		0.0	0.0	0.0	0.8	5.4	0.0	0.0	0.0	0.0	0.0	1.4	7.6
	NLC				0.8	2.2						1.4	4.4
	TESLA												0.0
	FNPL												0.0
	Muon Facilities					2.7							2.7
	New Proton Source					0.5							0.5
	VLHC												0.0
	Generic R&D												0.0
Other Direct		11.7	8.0	2.1	1.6	5.1	16.5	6.5	3.0			13.4	67.7
Indirect													0.0

FY05 alone

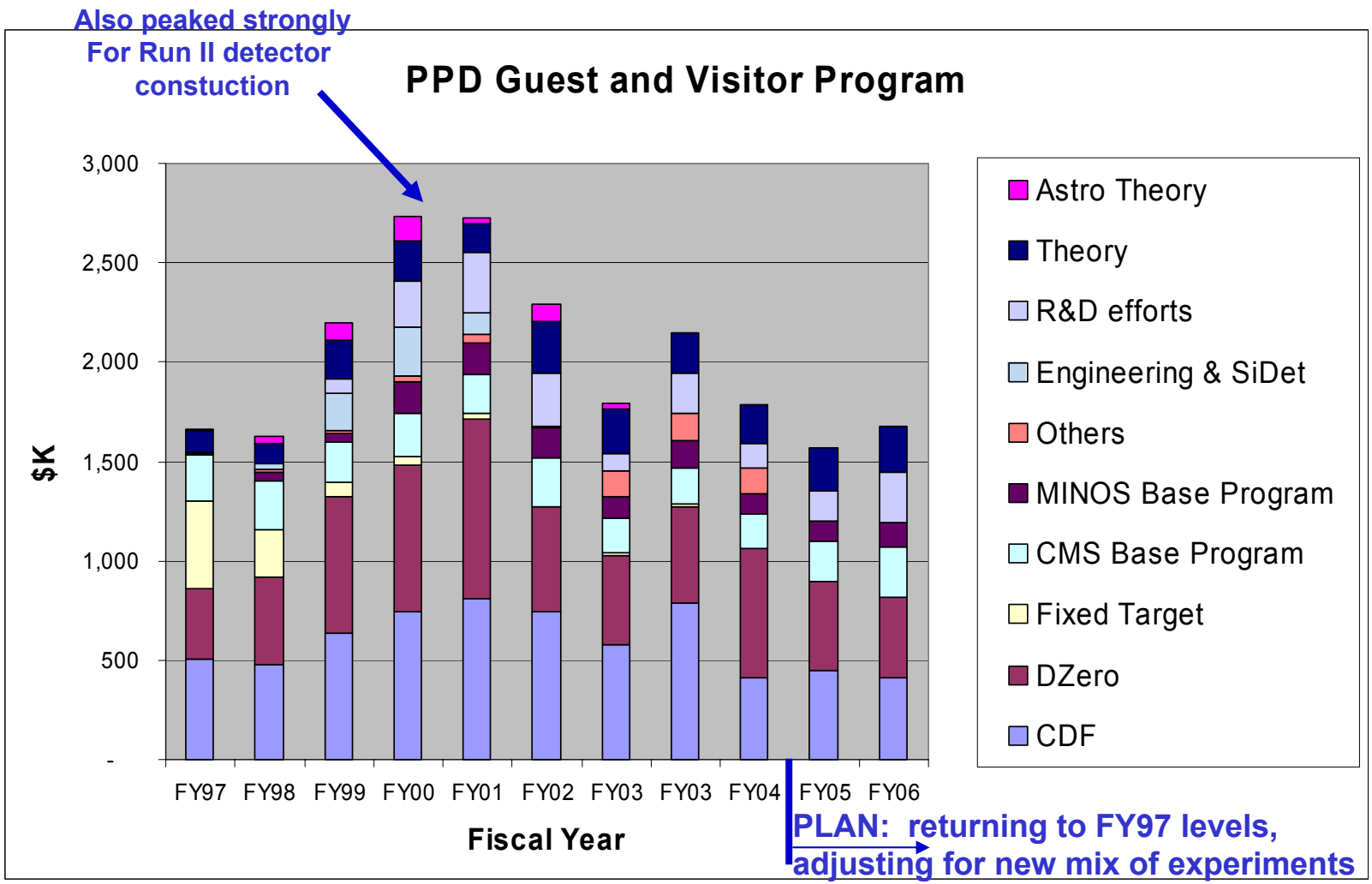


FY05		Admin & Management	Computer Professionals	Engineering Physicists	Engineers	Scientists	Other Technical Support	Clerical & Secretarial	Drafters	Service Workers	Skilled Trades	Technicians	TOTAL
TOTAL		**22.9**	**24.0**	**18.0**	**60.0**	**150.7**	**67.9**	**8.5**	**13.0**	**0.0**	**0.0**	**91.3**	**456.2**
Experimental		9.0	16.0	11.3	47.5	104.3	38.3	2.3	7.4	0.0	0.0	53.8	289.8
	CDF	4.5	4.0		9.0	32.0	9.6		0.9			11.0	70.9
	D0	1.5	9.0	5.1	7.2	32.0	13.7	0.5	4.3			13.2	86.5
	MINOS			1.0	0.6	4.2	0.1					1.0	7.0
	MiniBooNE					2.0							2.0
	CMS	2.0	2.0	2.2	10.5	9.5	6.8	1.0	2.0			3.1	39.0
	BTeV	1.0		2.0	13.6	6.2	4.7	0.8				15.3	43.5
	Future Kaons				1.7	1.1							2.8
	SDSS			1.0	1.5							4.8	7.4
	CDMS				1.0	1.0	2.0					2.0	6.0
	Auger					3.4						0.3	3.7
	Fix target exp		1.0		0.4	7.2	0.2					0.2	9.0
	New Initiatives				2.0	5.8	1.3		0.3			2.8	12.2
Theory		2.0				33.0							35.0
LHC Accelerator													0.0
Accelerator operation		0.0	0.0	4.6	8.3	1.2	11.7	0.0	1.0	0.0	0.0	26.6	53.3
	Run 2			4.6	8.3	1.2	11.7		1.0			26.6	53.3
	MiniBooNE												0.0
	NuMI												0.0
Accelerator R&D		0.0	0.0	1.0	2.0	6.4	3.0	0.0	0.0	0.0	0.0	0.4	12.7
	NLC			1.0	2.0	3.1	3.0					0.4	9.4
	TESLA												0.0
	FNPL												0.0
	Muon Facilities					2.7							2.7
	New Proton Source					0.7							0.7
	VLHC												0.0
	Generic R&D												0.0
Other Direct		11.9	8.0	1.1	2.3	5.8	15.0	6.2	4.6			10.6	65.4
Indirect													0.0

FY06 alone

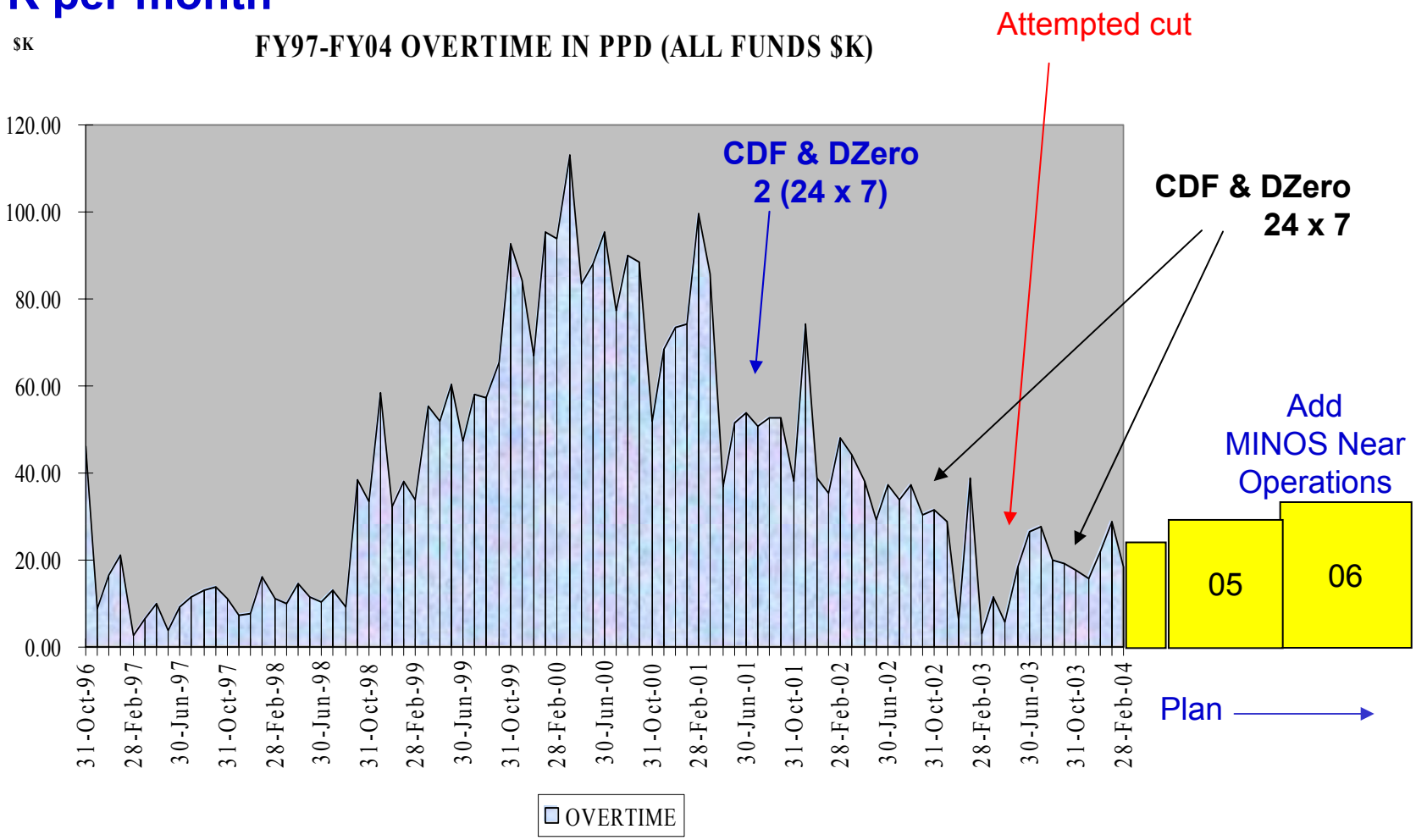
FY06		Admin & Management	Computer Professionals	Engineering Physicists	Engineers	Scientists	Other Technical Support	Clerical & Secretarial	Drafters	Service Workers	Skilled Trades	Technicians	TOTAL
TOTAL		**22.4**	**24.0**	**18.0**	**59.9**	**146.8**	**61.0**	**8.5**	**13.0**	**0.0**	**0.0**	**85.7**	**439.2**
Experimental		8.6	16.0	10.9	47.5	95.5	39.1	2.3	12.0	0.0	0.0	48.0	279.9
	CDF	4.5	4.0		6.7	27.9	7.9					11.0	62.0
	D0	1.1	9.0	1.7	5.4	28.8	9.8	0.5	4.3			10.0	70.6
	MINOS				1.2	3.6	0.3					0.1	5.2
	MiniBooNE					2.0							2.0
	CMS	2.0	2.0	1.1	5.5	11.5	5.5	1.0	1.0			0.4	29.9
	BTeV	1.0		7.1	24.7	6.2	12.5	0.8	6.5			19.8	78.7
	Future Kaons												0.0
	SDSS			1.0	1.5							2.8	5.4
	CDMS				1.0	1.0	2.0					2.0	6.0
	Auger					3.4							3.4
	Fix target exp		1.0			5.3							6.3
	New Initiatives				1.5	5.7	1.2		0.3			1.9	10.6
Theory		2.0				33.0							35.0
LHC Accelerator													0.0
Accelerator operation		0.0	0.0	5.0	8.7	6.1	5.9	0.0	1.0	0.0	0.0	25.9	52.5
	Run 2			5.0	8.7	6.1	5.9		1.0			25.9	52.5
	MiniBooNE												0.0
	NuMI												0.0
Accelerator R&D		0.0	0.0	1.0	1.5	6.5	2.5	0.0	0.0	0.0	0.0	1.0	12.5
	NLC			1.0	1.5	3.7	2.5					1.0	9.7
	TESLA												0.0
	FNPL												0.0
	Muon Facilities					2.2							2.2
	New Proton Source					0.7							0.7
	VLHC												0.0
	Generic R&D												0.0
Other Direct		11.89	8	1.05	2.16	5.65	13.47	6.22				10.82	59.3
Indirect													0.0

Another "manpower cost" within M&S

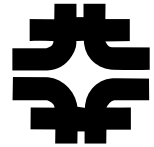


And overtime is another

$ K per month



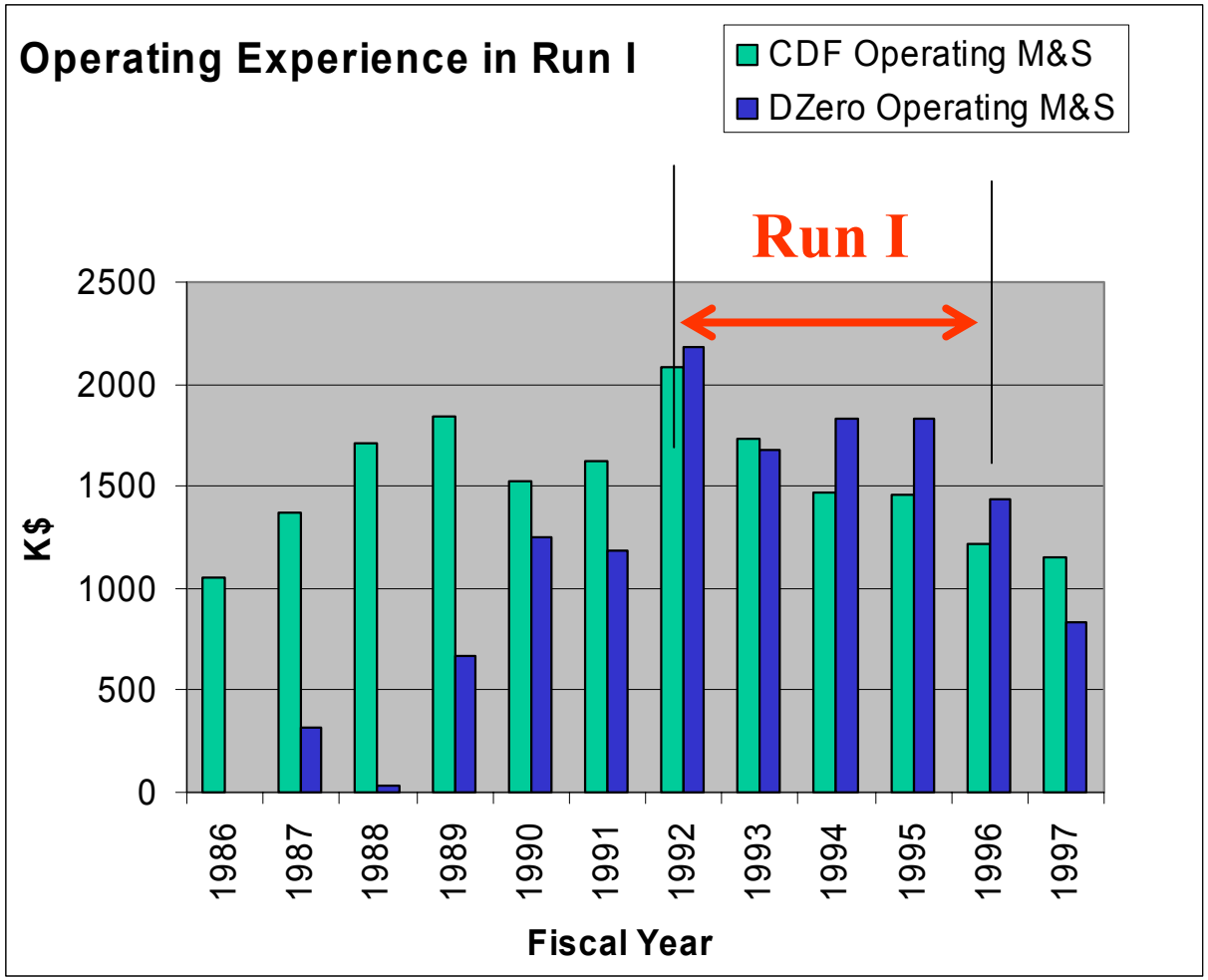
Lab WBS budget plan for PPD



- You have the complete spreadsheet
- The SWF tracks the # of people already discussed, so I won't do it again
- M&S budget plan details next then

M&S budget Plan, Colliders

- Guided by Run I experience
  - Peak in initial year,
  - slow decline every year thereafter
  - WHAT year are we in?
  - DZero 1 year later? Still commissioning some items
  - expect small decline from now on



FY04- 06 PPD M&S PLAN

at Lab WBS level 3 or 4

B&R Control Level		(All)	04 TOTAL M&S	05 TOTAL M&S	06 TOTAL M&S
1.1	Accelerators		0.0	0.0	0.0
1.2	Collider Experimental Program		5,169.0	7,165.0	3,043.0
1.2.1	CDF		2,466.0	2,542.0	1,467.0
1.2.1.1	CDF Operations		1,577.0	1,497.0	1,467.0
1.2.1.4	CDF Run IIb		889.0	1,045.0	0.0
1.2.2	DZero		2,703.0	4,623.0	1,576.0
1.2.2.1	Dzero Operations		1,678.0	1,616.0	1,576.0
1.2.2.4	Dzero Run IIb		1,025.0	3,007.0	0.0
1.2.3	Run II Computing		0.0	0.0	0.0
1.2.4	Si-Det Facility Support for Run IIb		0.0	0.0	0.0
1.3	LHC		5,156.2	3,173.0	7,479.0
1.3.1	LHC		0.0	0.0	0.0
1.3.2	CMS		5,156.2	3,173.0	7,479.0
1.3.2.1	CMS Project		3,152.0	1,572.0	2,300.0
1.3.2.2	Related Research (Base Support)		315.0	311.0	359.0
1.3.2.3	Si-Det Facility Support for CMS		0.0	0.0	0.0
1.3.2.4	CMS Maintenance and Operations		1,689.2	1,290.0	4,820.0
1.3.3	CMS Software & Computing		0.0	0.0	0.0
1.3.4	US LHC Accelerator Research Program		0.0	0.0	0.0

Ops declines slowly

Run II Projects Finish

US-CMS Construction Becomes M&O

PPD FY04 – 06 M&S PLAN, continued

B&R Control Level	(All)	04 TOTAL M&S	05 TOTAL M&S	06 TOTAL M&S
1.4	BTeV	900.0	8,092.4	21,458.5
1.4.1	MIE	0.0	4,592.4	21,408.5
1.4.1.1	Detector MIE	0.0	1,535.6	12,538.5
1.4.1.2	CZero Interaction Region	0.0	3,056.9	8,870.0
1.4.2	Operations, Support & R+D	900.0	3,500.0	50.0
1.5	Experimental Initiatives	154.0	368.0	725.0
1.5.1	Future Kaons	50.0	0.0	0.0
1.5.2	External Beamlines & Fixed Target Exps	24.0	18.0	25.0
1.5.2.2	Prior Fixed Target Runs - 1997	10.0	0.0	0.0
1.5.2.3	Prior Fixed Target Runs - 1999	4.0	5.0	5.0
1.5.2.6	Meson 120 (E906 and 907)	0.0	0.0	0.0
1.5.2.7	External Beamlines	10.0	13.0	20.0
1.5.2.8	BNL 949	0.0	0.0	0.0
1.5.3	Off-Axis Neutrinos	80.0	350.0	700.0
1.6	Neutrino Experiments	2,284.0	2,153.0	1,750.0
1.6.1	NuMI / MINOS	2,214.0	2,103.0	1,700.0
1.6.1.1	Beamline	0.0	0.0	0.0
1.6.1.2	MINOS	914.0	603.0	200.0
1.6.1.3	Other Project Costs	0.0	0.0	0.0
1.6.1.4	Prior Year Funds	0.0	0.0	0.0
1.6.1.5	Related Scientific Effort	0.0	0.0	0.0
1.6.1.6	Soudan Operations	1,300.0	1,500.0	1,500.0
1.6.4	MiniBooNE	70.0	50.0	50.0

BTeV Project Turns on PPD hosts, Therefore see All $ here

R&D ends

Testbeam

NOvA R&D

MINOS Ops

Near

Far

FY04 – 06 PPD M&S PLAN, more

B&R Control Level	(All)	04 TOTAL M&S	05 TOTAL M&S	06 TOTAL M&S
1.7	Future Accel. & Advanced Accel. R&D	120.0	220.0	320.0
1.7.3	Muon Storage Ring	20.0	20.0	20.0
1.7.4	Linear Collider	100.0	200.0	300.0
1.7.7	New Proton Driver	0.0	0.0	0.0
1.8	Theory	470.0	510.0	545.0
1.8.1	Particle Theory	320.0	360.0	395.0
1.8.2	Astrophysics Theory	150.0	150.0	150.0
1.9	Experimental Particle Astrophysics	1,015.0	425.0	425.0
1.9.1	SDSS	8.0	8.0	8.0
1.9.2	CDMS	861.0	271.0	271.0
1.9.3	Pierre Auger	146.0	146.0	146.0
1.9.5	JDEM	0.0	0.0	0.0

Travel

LC Detector R&D Ramping up

Probably > 0?

Continued Ops At Soudan

Travel continues

More FY04 – 06 PPD M&S PLAN

B&R Control Level		04 TOTAL M&S	05 TOTAL M&S	06 TOTAL M&S
	(All)			
1.10	Programmatic Support (Direct)	1,351.9	1,344.0	1,361.0
1.10.5	Technical Facilities	481.0	414.0	316.0
1.10.5.1	Experimental Facility Support	476.0	409.0	311.0
1.10.5.1.1	Computer Numerically Controlled Ro	5.0	5.0	5.0
1.10.5.1.2	Plastics and Thin Film Coating	15.0	15.0	15.0
1.10.5.1.3	Scintillator Detector Development	25.0	25.0	25.0
1.10.5.1.4	Silicon Detector development	259.0	200.0	100.0
1.10.5.1.5	Winding and Detector Support	5.0	5.0	5.0
1.10.5.1.6	Detector Assembly Machine Develop	5.0	5.0	5.0
1.10.5.1.7	Carbon Fiber Facility	30.0	25.0	15.0
1.10.5.1.8	Electronic Assembly Support	23.0	20.0	20.0
1.10.5.1.9	Mechanical Assembly Support	94.0	94.0	96.0
1.10.5.1.10	Extrusion Facility	15.0	15.0	25.0
1.10.6	Engineering Support	557.0	616.0	726.0
1.10.6.1	ASICS	321.0	341.0	401.0
1.10.6.2	Computer Aided Systems	236.0	275.0	325.0
1.10.6.3	Instrumentation	0.0	0.0	0.0
1.10.6.5	Engineering Tools	0.0	0.0	0.0
1.10.7	TV System Support	10.0	10.0	5.0
1.10.8	Survey & Alignment	150.0	150.0	150.0
1.10.11	Travel for Conferences	55.0	75.0	75.0
1.10.12	U.S. Particle School Office	37.6	38.0	38.0
1.10.13	Conference/Workshop Support	61.3	41.0	51.0
1.11	Other Projects	0.0	0.0	0.0

shrinks

ASICs & tools

FY04 – 06 PPD M&S PLAN, last bit

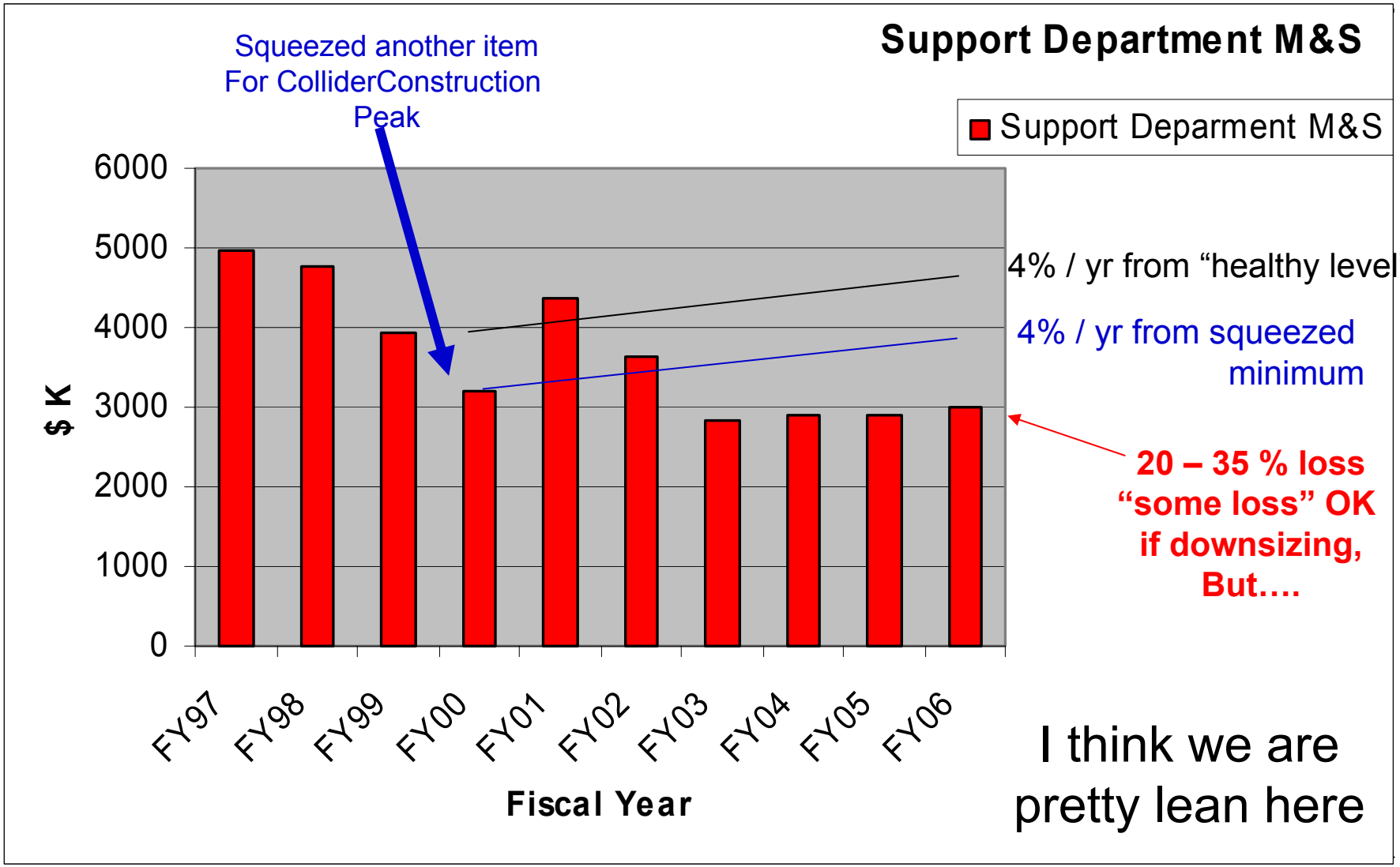
B&R Control Level	(All)	04 TOTAL M&S	05 TOTAL M&S	06 TOTAL M&S
1.12	Other Support (Direct)	212.0	735.0	561.5
1.12.1	Buildings/Facilities	154.0	485.0	411.5
1.12.1.1	Maintenance	80.0	274.0	345.0
1.12.1.2	Management	40.0	40.0	(64.3)
1.12.1.3	Cleanup and Restoration	34.0	171.0	130.8
1.12.2	ES&H	58.0	250.0	150.0
1.12.2.1	PCB Activity	0.0	0.0	0.0
1.12.2.2	Waste Management	0.0	0.0	0.0
1.12.2.3	Other	58.0	250.0	150.0
1.12.2.4	Security Services	0.0	0.0	0.0
1.13	Division Management and Support (Direct)	819.1	794.0	869.0
1.13.1	Management/Supervision	653.1	623.0	673.0
1.13.1.1	Division Management and Operations	234.1	215.0	215.0
1.13.1.2	Department Management and Operation	419.0	408.0	458.0
1.13.1.3	General Office	0.0	0.0	0.0
1.13.1.4	Administrative Support	0.0	0.0	0.0
1.13.2	General Purpose Equipment and Support	16.0	16.0	31.0
1.13.3	Computing Support/Information Systems	145.0	150.0	160.0
1.13.4	Training and Education	5.0	5.0	5.0
1.0	TOTAL	17,651.2	24,979.4	38,537.0

Falling behind, e.g. FOCUS Now idle 7 years

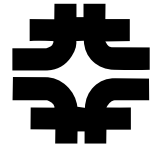
DOE + OSHA?

Increase is All in BTeV

Support Department M&S history
in then year $



PPD Summary



- Next we have prepared talks on the major parts of PPD:
  - CDF Operations (Rob Roser)
  - DZero Operations (Linda Stutte)
  - MINOS Operations (Gina Rameika)
  - Other PPD Operations (Mike Crisler)